

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A method of tag-directed synthesis of a plurality of compounds, comprising:

(a) forming a first group of subsets of nucleic acid tags for participating in a first synthetic reaction step, wherein each nucleic acid tags comprises a first hybridization sequence linked to a second hybridization sequence, which said second hybridization sequence is linked to a chemical reaction site and where the nucleic acid tags in each subset each has a selected one of a plurality of different first hybridization sequences, and a mixture of different second hybridization sequences, ~~and a chemical reaction site~~, by contacting said nucleic acid tags with a plurality of first immobilized nucleotide sequences, each designed to capture a subset of said tags by hybridization between one of said tag first hybridization sequences and the ~~associated~~ first immobilized sequence;

(b) carrying out the first synthetic step by reacting the chemical reaction sites in each of the subsets formed in (a) with a selected one of a plurality of first reagents, thereby to convert the chemical reaction site in each tag to a reagent-specific compound intermediate on the ~~associated~~ nucleic acid tag in each subset;

(c) forming a second group of subsets of the ~~reacted~~ nucleic acid tags ~~formed in~~ of step (b), for participation in a second synthetic reaction step, by contacting said ~~reacted~~ nucleic acid tags with a plurality of second immobilized nucleotide sequences, each designed to capture a subset of said nucleic acid tags by hybridization between one of said tag second hybridization sequences and the ~~associated~~ second immobilized sequence; and

(d) carrying out the second synthetic step by reacting the reagent-specific compound intermediate ~~in the associated tags~~ of the nucleic acid tag in each of the subsets formed in (c) with a selected one of a plurality of second reagents.

2. (Cancelled)

3. (Previously presented) The method of claim 1, for use in forming a plurality of oligomers with different subunit sequences, wherein the plurality of first and second reagents in steps (b) and (d) include different oligomer subunits.